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THE
FOREST
WORKER

MAY, 1925.

FOREST SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.



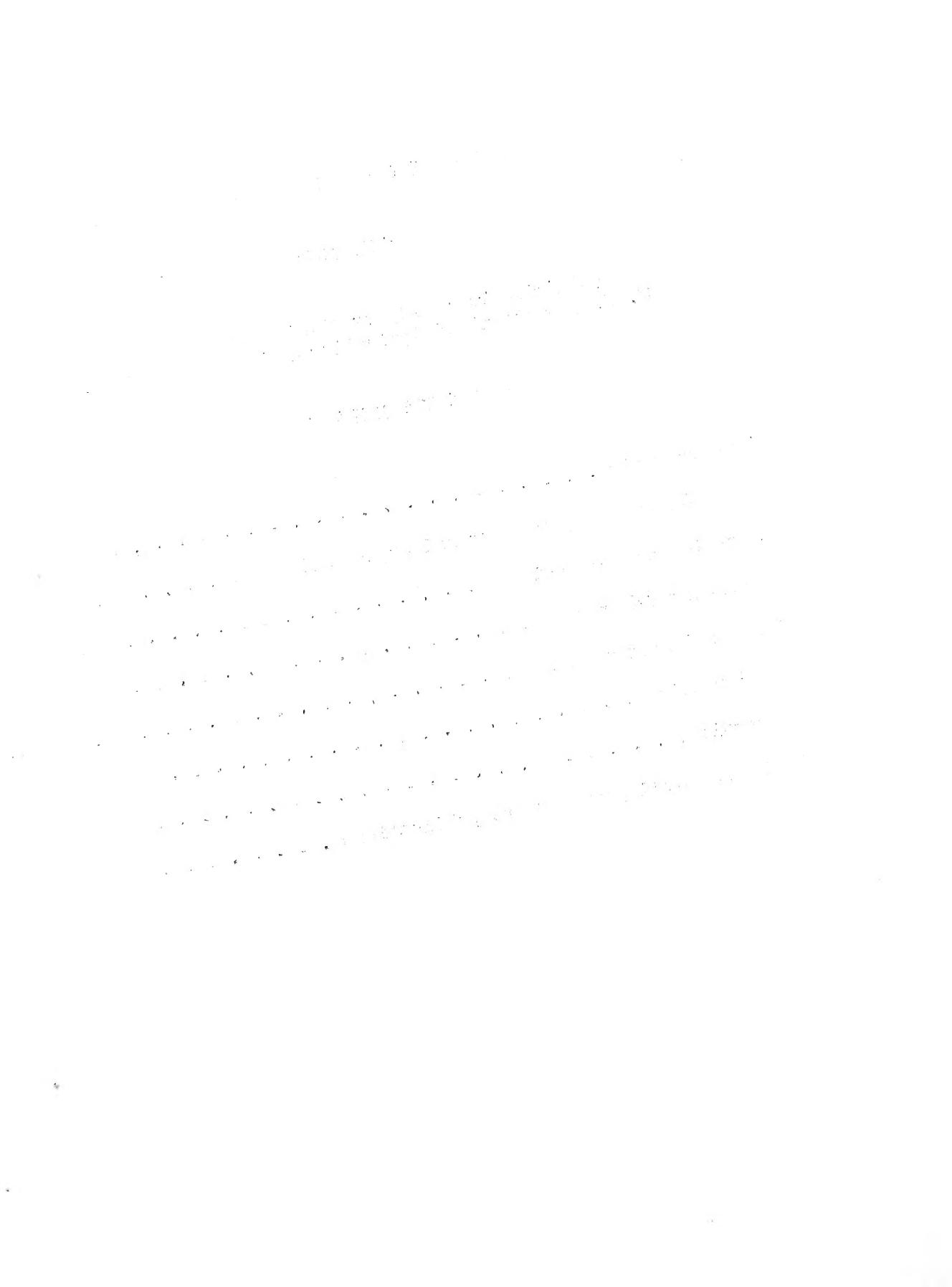
THE FOREST WORKER

MAY, 1925

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CONTENTS

	<u>Page</u>
Announcements	3-8
State forestry departments and organizations	9-22
Education and extension	23-30
Forest Service notes	31-38
General forest news	39-50
Foreign notes	51-54
Personals	55-58
Articles, bibliographies and publications	59-65



ANNOUNCEMENTS

World's Forestry Congress in Rome

(May 1926)

An International Forestry Congress will take place in Rome in May, 1926, under the auspices of the International Institute of Agriculture. It is the intention of the organizing committee to hold the congress to practical purposes and to treat only questions really of international importance. Special attention will be given to statistical problems and to problems of the forest industries. The congress will also discuss technical, economic, and legal aspects of forestry.

At the time of the congress an important collection of forest products and of machines used in wood industries will be exhibited. Excursions to some of the most interesting forests of Italy and if possible to some in other countries will be arranged for the members.

In addition to governmental delegates, societies, associations, institutions, and private persons can become members of the congress by sending to the "Forestry Congress Committee," c/o Institut International d'Agriculture, Rome, Villa Umberto I, by registered letter, the subscription fee of 50 French francs (approximately \$2.50). The members will receive free of charge all the reports of the congress and may enjoy further privileges such as reduction of traveling expenses on land and sea excursions, admission to receptions, etc. A special program giving full particulars in regard to these privileges will be issued later.

Membership blanks can be obtained from the Forest Service, Washington, D. C., or from S. T. Dana, Northeastern Forest Experiment Station, Amherst, Massachusetts.

Come and Get It!

: The sum of \$1,000 has been given to the Society of
: American Foresters by Charles Lathrop Pack, President of
: the American Nature Association, to be awarded in two
: prizes for scientific and technical articles on forestry
: written by foresters. The first award of \$500 applies to
: articles prepared not later than January, 1926, and the
: second to the prize article selected not later than Jan-
: uary, 1927. The Executive Council of the Society now has
: under consideration the details of these awards and ex-
: pects to make formal announcement of the prize contest
: within the near future.

Forest Prize Offered in Georgia

A silver loving cup is offered to the club making the best showing in advancing forestry in Georgia before the October meeting of the State Federation of Women's Clubs at Atlanta. The cup is the gift of Mrs. W. W. Stark, prominent in club circles and an active leader in the Georgia Forestry Association. It is offered to stimulate State-wide tree planting, school woodcraft exhibits, and efforts to increase membership in the Georgia Forestry Association.

The cup must be won for three successive years to become the permanent prize to any one club district.

Conference of Oregon Foresters

The third annual conference of fire wardens and law-enforcement men in the employ of the State Board of Forestry of Oregon is to be held in Salem about the middle of May. Representatives of forestry protective organizations and others interested in this phase of the work throughout the Northwest will be invited to attend. The program will include addresses by a number of men very prominent in forest activities. Special interest will be given to the meeting of this year by the necessity of taking up the revised forest code passed by the last session of the legislature, thoroughly threshing out the various provisions of the law, and instructing the men as to what will be expected of them in its enforcement. Subjects to be discussed will include slash disposal, law enforcement, weather bureau, fires and fire weather, and any other matters which the men may care to bring up. An interesting feature of the conference will be the banquet held on the evening of the first day.

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Unpublished Manuscript Available

In addition to the unpublished manuscripts listed in the March issue of the Forest Worker, the Forest Service now has available for distribution to members of the faculties of forest schools and to State foresters an unpublished report on Comparative Forage Values and Distinguishing Characteristics of the More Common Range Plants of District Four, by Arthur W. Sampson, Plant Ecologist. Typed copies of this report will be furnished to applicants willing to pay for the typing.

With regard to the previous offer to furnish copies of Grazing Investigations Program, 1924, it is announced that the 1925 program will probably be ready for distribution in mimeographed form within two months.

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American Forest Week

Forest Protection Week, which for four years has been observed annually in response to Presidential proclamation, this year has become American Forest Week. It is still true that the greatest possible contribution to forest economy lies in the conquest of the 50,000 fires that annually devastate the forest wealth of America as no other agency destroys any other natural or artificial resource of any country; but many

other phases of the perpetuation and use of the forests have a claim on the special interest of the public. American Forest Week is a week for the consideration and contemplation of the tangible and intangible benefits of our forests, for the planning of their creation, care, and improvement, for tree planting, for the devising of economies in the preparation and use of forest products, and for the encouragement of the one great economic measure in which all the people can and must cooperate if it is to succeed - the perpetual forestation of our forest land.

Besides feeling that the purposes of the week ought to be broadened, the Forest Service judged that it could be more effectually administered by a non-governmental body. Accordingly, the direction of the activities of the week was entrusted to the American Forest Week Committee, headed by the Hon. Frank O. Lowden and including the following organizations: The General Federation of Women's Clubs, the U. S. Forest Service, the American Forestry Association, the National Lumber Manufacturers' Association, the Izaak Walton League of America, the American Tree Association, American Paper and Pulp Association, American Farm Bureau Federation, Associated Advertising Clubs of the World, Western Forestry and Conservation Association, American Federation of Labor, and many other national and regional educational, professional, and industrial groups.

The committee proposed as the central event of American Forest Week in every community a public meeting with a program of talks, stereopticon, or moving pictures, and the adoption of resolutions regarding reforestation and afforestation. It suggested the organization of local and State committees representing the women's clubs, business clubs, luncheon clubs, the big consumers of forest products, the schools, the press, the wholesale and retail lumber trade, the outdoor societies, the agricultural industry, the Boy Scouts, and all other interested groups of citizens, which would direct and localize the observance of Forest Week. Emphasis was placed on the importance of localizing this educational campaign. It was urged that wherever possible the observance of the week include the undertaking of some local project such as the acquisition of land for a municipal or State forest and tree planting on local watersheds, in parks, and along highways. Other activities which claimed place in the program of the week were efforts to extend the membership of State and national associations devoted to the advancement of forestry; special excursions of outdoor organizations; the featuring of forest subjects at regular or special meetings of all local organizations accustomed to discuss public affairs; demonstrations of better ways of utilizing forest products; special forest assemblies in the public schools; and forestry pageants by the Boy and Girl Scouts.

Publicity material for Forest Week was printed and distributed by the Forest Service in great quantities. By April 16 the Service had printed and distributed 150,000 copies of a suggested program for the observance of American Forest Week by schools, Boy Scouts, etc., and 120,000 copies of the President's proclamation. About 15 stories bearing on various phases of forestry were mimeographed and distributed, the total number of copies being estimated at 28,000. Both printed and mimeographed material was distributed first to the district offices of the Forest Service, the eleven Forest Experiment Stations, and the Forest Products Laboratory. The State Forestry Departments received large quotas. Hundreds of miscellaneous requests received by the Service were filled next, and finally in cooperation with the American Forest Week Committee a long mailing list of organizations and persons was covered. All told, the Forest Service mailed 90,000 copies of the American Forest Week booklet prepared by the Committee and 18,000 copies of its clip sheet for newspapers.

Wise forest protection does not mean the withdrawal of forest resources, whether of wood, water, or grass, from contributing their full share to the welfare of the people, but, on the contrary, gives the assurance of larger and more certain supplies. The fundamental idea of forestry is the perpetuation of forests by use. Forest protection is not an end of itself; it is a means to increase and sustain the resources of our country and the industries which depend on them.

--Theodore Roosevelt.

Arbor Day

This year the observance of Arbor Day falls within American Forest Week in at least five States, as follows: Massachusetts, Michigan, Vermont, Wisconsin, and Wyoming.

The first observance of Arbor Day in the United States took place in "treeless Nebraska." The Hon. J. Sterling Morton, then a member of the Nebraska Board of Agriculture and later United States Secretary of Agriculture, in 1872 introduced at a meeting of the board a resolution by which the tenth of April of that year was set apart and consecrated to tree planting in the State of Nebraska. Wide publicity was given to the plan, and on that first Arbor Day over a million trees were planted in the State. A few years later the State legislature passed an act designating Mr. Morton's birthday, April 22, as the date of Arbor Day and making it a legal holiday. Originally almost bare of trees, Nebraska has become one of the leaders in practical forestry. In 1895 the legislature passed a resolution that the State be popularly known as "The Tree Planters' State."

At the present time more than half the States have laws for the observance of Arbor Day. In the others and in several of the Territories the day is observed by proclamation of the governor, authorization by the superintendent of education, or other action. In at least one State besides Nebraska - Rhode Island - the day has been made a legal holiday.

All over the United States, Arbor Day has acquired patriotic and esthetic associations in addition to its original practical purpose. Tree planting furnishes a lasting incentive to civic betterment, and carries with it a realization of the value of community and national foresight.

Missing

Albert Caplan left Philadelphia Sunday, March 29, 1925, on a hike towards Trenton, N. J., and New York City, and has not returned. He is 1^h years of age, 5 feet 8 inches tall, weighs 137 pounds, has dark hair and complexion, good teeth, and large frame, and wears silver-rimmed glasses. When he left home he had on khaki knickers, shirt, and knapsack, scut shoes and hat, and black-and-white checked flannel lumberman's jacket.

Since he is interested in forestry, it is thought that he might have applied for employment in some sort of forest work. If you have any news of this boy, kindly notify his father, Joseph Caplan, 2340 N. Park Avenue, Philadelphia.

STATE FORESTRY DEPARTMENTS AND ORGANIZATIONS

State Forestry

By C. R. Tillotson, U. S. Forest Service

So much prominence has been given to the aims, efforts, and accomplishments of the Federal Government in forestry matters that the less spectacular but in no wise less effective local efforts of the States along similar lines have to a large extent been lost sight of. In their own fields, some of the States have initiated forest policies and carried on activities of wide scope. In some lines of effort they are leading rather than following the Federal Government.

Efforts to protect by legislation the property rights of the commonwealth in its timberland were made as early as the colonial times by New Hampshire and Massachusetts. The real need of definite and sustained forestry effort was not evident, however, until a much later date; and legislation and endeavor of any real consequence were postponed until about 1867. In that year the agricultural and horticultural societies of Wisconsin were invited by the legislature to appoint a committee to report on the disastrous effects of forest destruction. In 1869 the Maine Board of Agriculture appointed a committee to report on a forest policy for the State, which led to the Act of 1872 "For the Encouragement of the Growth of Trees" granting 20 years exemption from taxation for lands planted to trees. Following the great influx of settlers to the prairie States, laws regarding the trees on highways and for the encouragement of timber planting under either bounty or exemption from taxation were passed in Iowa, Kansas, and Wisconsin in 1868; in Nebraska and New York in 1869; in Missouri in 1870; in Minnesota in 1871; in Nevada in 1873; in Illinois in 1874; and in Dakota and Connecticut in 1875. As a result nearly one million acres of trees were planted in the prairie region alone. As early as 1885 New York State made provision for the protection of the great Adirondack timber preserve against fire; and in 1895 Minnesota made provision for protection against fire of all timberland in the State.

Developments in recent years in the States have been rapid. Nineteen States now have established State forests, with an area of 5,600,000 acres; thirty-three States have State forestry departments; twenty-nine States are at present giving protection against fire to 175,000,000 acres of timberland; and sixteen States maintain State forest nurseries and are now able each year to distribute 25 or 30 million young trees for forest planting within their boundaries. Ninety thousand to one hundred thousand acres of State-owned lands alone have been planted to forest and fully 1,370,000 acres of privately-owned land. State appropriations for all forestry purposes have increased from \$65,000 in the year 1890 to about \$5,500,000 at the present time.

Each of the States which maintain forestry departments gives aid to timberland owners in the handling of their woodlands and in the disposal of their forest products. Vermont maintains a clearing house for sellers and purchasers of timber. Other States have made intensive surveys of their forest resources, of the timber products consumed, the amount of wood shipped in, the freight charges involved, and other kindred questions. Many States have taken a leading part in the introduction of the subject of forestry into the public schools. In Tennessee and Louisiana the teaching of forestry in all public schools is compulsory. In other States the subject of forest fire prevention is taught along with the general subject of fire prevention.

The States receive cooperation from the Federal Government in the protection against fire of forest lands at the headwaters of navigable streams. Federal aid in this respect amounts at present to \$400,000 a year. The States pledge themselves to spend at least an equal amount, and have far exceeded this requirement. Today they are spending about \$1,700,000 yearly. They have not been stingy with either their money or their efforts in advancing the forestry program of the United States.

A field which the States have developed to a marked degree is that of community forests. Towns, cities, and villages have been urged by State forestry authorities to buy up or otherwise acquire forest land which can be devoted to the purpose of growing timber and of protecting the watersheds of streams which furnish municipal water supplies. The States have given aid by furnishing young trees for planting, usually free of cost. The result of this movement is much wider than is usually realized. According to available records about 500,000 acres of land have been acquired by municipalities for such forests, and it is more than likely that the total exceeds this figure. The communal forests promise in time to become as important in the United States as they already are in several of the European countries.

Progress in State Forestry Legislation

By J. G. Peters, U. S. Forest Service

Thus far at the legislative sessions of 1925, important laws have been enacted in Idaho, Indiana, Missouri, North Carolina, Ohio, Oklahoma, and Vermont. Equally important bills failed in Arkansas, Montana, Oregon, South Carolina, Texas, and Washington.

The outstanding provisions of the new Idaho law include a State forestry board; State forester, compulsory patrol, and regulation of slash disposal. Indiana establishes a State forestry fund through a special state-wide tax on all property, estimated to yield approximately \$25,000 annually, for the purchase and maintenance of State forests and the growing of forest planting stock.

Missouri creates a forestry department, with a State forester, in the State board of agriculture. North Carolina elevates its geological and economic survey, which has heretofore had control over the forestry work of the State, to a department of conservation and development. Ohio provides in the usual type of yield-tax law for the classification of forest lands, of a defined character, which the owner shall "declare to be devoted exclusively to forestry." Oklahoma establishes a forestry commission, and, through the passage of an enabling act, permits the Federal Government to purchase lands in the State for national forests. Vermont also, through an enabling act, permits the acquisition of lands for national forests.

Among the important measures which failed were those in Arkansas and South Carolina to establish State forestry departments; in Montana, to elevate the present forestry department from a division in the land department to a separate State board of forestry; in Oregon, to allow the State board of forestry to establish a value on denuded forest land for taxation purposes, the assessed valuation being based on the value of the land for growing timber, or, in other words, on the expectation value (this passed the legislature but received the governor's veto); in Texas, the resolution to amend the constitution so as to empower the legislature "to enact just laws for the taxation of lands set aside for purposes of timber growing and for the supervision of such lands and the administration of such laws"; and in Washington, the bill passed by the legislature but vetoed by the governor which had in view the strengthening of the fire-protective system.

Reforestation in New York State

The Conservation Commission of New York State has given out the following figures as a few high lights on the progress of its movement for the reclamation of waste land by reforestation:

First Plantation, 1901	5,000 trees
Planted last year	9,247,000 "
Planted since 1901	86,000,000 "
Annual output of State nurseries, 1925,	10,000,000 "
" " " " " by 1926,.....	18,000,000 "
" " " " " 1930,.....	35,000,000 "
Farmers and individual landowners in 1924 planted	4,639,550 "
Municipalities	1,246,200 "
Industrial concerns	1,732,500 "
Farm bureaus	633,290 "
State institutions, rural schools, Boy Scouts, sportsmen's associations, and others	995,550 "

The State sells trees for planting on private land at \$2 per thousand for 2-year-old seedlings, and \$4 per thousand for 3-year-old transplants. Trees for planting on public land are furnished free. No trees are furnished for planting outside of New York State.

Plans have just been completed for the most extensive reforestation operations ever undertaken in this country, through the enlargement of the commission's nurseries so as to produce between 35,000,000 and 40,000,000 2-year-old trees for planting in 1927. This is nearly four times the present output of the nurseries and is made possible by the appropriation of \$120,000 for reforestation by the legislature this year.

The number of beds in the nurseries has been increased to 4,568. The beds have an average capacity of more than 8,000 young trees.

The supply of young trees that will be produced by 1927 from the seed to be planted this spring would plant about 40,000 acres, an area larger than the county of New York, Richmond, or the Bronx.

There will be 1,542 beds sown with white pine seed, which will be expected to produce 12,336,000 trees. The white pine seeds have been obtained from New York, Wisconsin, Minnesota, and the Province of Ontario.

There will be 1,080 beds of red or Norway pine, expected to produce 10,800,000 trees. A portion of the seeds was collected in the Adirondacks and some have been purchased in Minnesota and in the Province of Ontario.

Two hundred beds will be sown with Scotch pine, which according to estimate will produce 2,000,000 trees. The seeds were obtained from Germany.

Smaller plantings will include white spruce seed from Denmark, balsam from the Adirondacks, white cedar from New York and Pennsylvania, European larch from Austria, black locust from Austria, slash pine from Louisiana, and Corsican pine from southern Europe.

If weather conditions are favorable for germination and development, the Conservation Commission expects to have 39,000,000 more trees in its nurseries on July 4 than it now has. The output of the nurseries this year will be approximately 10,000,000. It is estimated that about 17,000,000 will be available in 1926, and under this plan 39,000,000 2-year-old seedlings will be available for 1927.

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Oregon's Forestry Budget

Data compiled in the office of the State Forester of Oregon from budgets submitted by the various cooperative organizations show that over \$250,000 will be spent this year in forest protection by the State, and association and private interests. This is exclusive of any fire-suppression costs and does not include any allotments which might be received from the Clarke-McNary fund. The personnel will include approximately 300 regularly paid firewardens and lookouts. Among the items included in the budget are patrolmen and lookouts, \$130,000; equipment and construction work, \$16,000; supervising wardens, \$22,000; and publicity, \$7,000.

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Connecticut Holds Thirtieth Forestry Annual

The thirtieth annual meeting of the Connecticut Forestry Association was held in Hartford on January 31, 1925, and was attended by more than 300 people. An interesting program included addresses by Connecticut forestry officials and by Mr. Flavel Shurtleff, a city planner attached to the Russell Sage Foundation, Congressman John Clarke of New York, and Major R. Y. Stuart of Pennsylvania. Colonel T. S. Woolsey, Jr., member of the State Chamber of Commerce Forestry

Committee, explained the proposed legislative program for forestry and reiterated the demand for more State forests, stating that Connecticut should have at least 200,000 acres of publicly-owned forest and recommending a bond issue as the best means of obtaining them. He also spoke of the need for a State nursery.

Dean H. S. Graves of the Yale School of Forestry was elected president for the year 1925. Resolutions were adopted declaring that the State should appropriate not less than \$700,000 for the next two-year period for State forest and park purchases.

In connection with the meeting of the association was held a meeting of the wardens of Hartford and Tolland counties. Addresses by E. B. Calvert, meteorologist of the U. S. Weather Bureau, Warden E. P. Bronson, and Mr. Westvelt of the Northeastern Forest Experiment Station, were followed by a spirited discussion of the different methods of attacking a fire.

Ohio and Texas Get Increased Appropriations

In Ohio appropriations for forestry for the present fiscal year have been increased by \$37,000 over those of last year. The current appropriation provides \$100,000 for the purchase of State forest lands, \$15,000 for a new nursery, and an increase of \$3,000 per year in forest fire funds. In addition, there are some increases in maintenance for both nurseries and State forests.

Texas, also, has been fortunate in its appropriation bills this year. The present annual appropriation for forestry in the State, exclusive of the money available for the purchase of State forest lands, amounts to \$29,560. The appropriation for the next biennial period gives the State \$49,000 per annum. Specific appropriations for fire protection were increased from \$15,200 to approximately \$28,000, an 80 per cent increase. The farm forestry item was increased from \$4,000 to \$6,000 per annum, and the general administrative allowance from \$6,200 to \$7,580. The Texas legislature at the present time is apparently quite favorable to forestry measures.

Telling the World

District Forester Harbeson of Milroy, Pennsylvania, has developed a number of interesting forest demonstration plots along the Lewis-town-Bellefonte Highway. During the winter months his forest rangers have been making improvement cuttings in stands of hardwood trees and have done pruning work in evergreen plantations along the highway. Travelers along this highway are impressed with these practical object lessons in forest treatment. At a commanding place near one of the improved plantations a double-faced sign, 3 x 7 feet, has been erected with the following inscription:

WHITE PINE
PLANTED 1913
WATCH THEM GROW

The letters on the sign are 8 inches high and can be easily read from a fast-moving automobile.

Another double-faced sign 3 x 6 feet has been placed near an improvement cutting. It bears the following inscription:

THIS AREA WAS
DEVASTATED BY FIRE IN 1900
NATURE'S NEW FOREST
AXE TREATED 1925

This improvement work and the display signs are the most practical kind of forest advertisement. Without the sign the value of the improvement work would be greatly reduced, and the educational signs without the accompanying demonstration plots would have little value.

These practical forestry advertisements should create a favorable sentiment and pay big dividends, for thousands of people will see them annually. More such demonstration plots are needed to show the public the practical features of forestry work.

Indiana Takes Progressive Step
By George R. Phillips, Assistant State Forester

The Indiana legislature of 1925 in passing the Lafuze Forestry Act has taken a definite progressive step.

The Lafuze Act provides for a levy of one-half mill on each \$100 worth of taxable property in the State for the year 1925 and annually thereafter for the establishment of a forestry fund. This makes an appropriation of approximately \$25,000. This forestry fund is to be expended by the Department of Conservation in the purchase, supervision, and development of State forests and for the growing of forest tree seedlings for planting on private and State-owned land. The act further provides that all income derived from the sale of State forest lands or the products thereof shall be covered into and shall constitute a part of the State forestry fund. This will enable the department to continue its present policy of selling forest tree seedlings to residents of the State for forest planting at a price not to exceed the cost of production.

The southern third of Indiana contains 45 per cent of the present forest area of the State and 48 per cent of the idle and waste land. It also contains one-quarter of the present population, but pays only 20 per cent of the taxes.

The population in this part of the State is gradually decreasing, because of the impossibility of making a living from the old worn-out farms, and each year central and northern Indiana pays nearly \$2,000,000 in taxes to help care for the school and civic needs of this section of the State.

The forestry fund will be expended mainly in the purchase of State forests in the hill land of southern Indiana. Much of this land is adaptable only to growing trees. Experience has shown the futility of attempting to use it for agricultural crops. By setting aside a certain amount of forest land from which a sustained yield of timber will be assured, it is hoped to bring additional wood-using industries into this part of the State and so give employment to the resident population. This, together with truck farming, will eventually constitute the chief industry of the section.

The Indiana hills, again covered with trees, should prove attractive to tourists and campers who would form an additional source of revenue for this needy territory.

Massachusetts Plants Tomorrow's Forests

Massachusetts has admirably anticipated American Forestry Week. The State government has distributed for planting no fewer than 4,000,000 white pine seedlings, besides a considerable number of spruce. These are sufficient for planting 5,000 acres. That, we may say, is a small,

almost an insignificant, area. It would be, if it were all in one plot. But these millions of trees have been distributed to practically every town and city in the State, so that the beneficial effect of the planting will be enjoyed in all parts of the commonwealth. It is far better to have a thousand trees in each of ten towns than 10,000 in one town and none in the other nine. Moreover, the State has 20,000,000 more trees which will be ready for distribution and planting next year and the year following, which will mean 25,000 acres reforested. Massachusetts is in area a small State. Let us suppose all other States in the Union to do as well - and they should, for there is not a State that needs it less than Massachusetts, while there are many that need it immeasurably more. Well, it would mean that in the present year there would be planted 1,400,000,000 trees, reforesting a total area of 1,850,000 acres. That, we submit, would be well worth while, as a substantial step toward checking the denudation of forest lands. And if in the next two years all continued to do as well as Massachusetts, with five times as much such work as this year, we should have by 1927 an area of more than 11,000,000 acres planted with nearly 9,000,000,000 trees. That would be tree planting in earnest.--The Washington Post.

Vermont Forestry Association Organized

The Forestry Committee of the Green Mountain Club at a meeting on March 31 organized the Vermont Forestry Association. The new association has as its purposes the conservation of Vermont timber, the purchase and reforestation of State lands, and the education of the people to the urgent need of these things. Professor K. R. B. Flint, chairman of the Bureau of Municipal Affairs at Norwich University, Northfield, was elected president. The officers include a vice president representing each county in the State.--The Green Mountain State Forest News.

New York Forestry Association Publishes Yearbook

As a part of its Conservation Week program the New York State Forestry Association has presented its yearbook, containing a record of the association's activities during the 12 months ending with the annual meeting of January 29, 1925. This publication replaces the association's quarterly magazine, and contains in addition to the annual report an article from each affiliated group with which the association has cooperated during the year.

The yearbook contains encouraging evidence of cooperation between the various interests concerned in New York forestry, and upholds the association's claim that it provides a common meeting ground where opinions may be frankly expressed, differences adjusted, and understandings reached.

The State Forestry Association is now a little more than 10 years old. It has doubled its membership three times since 1919; it has contributed materially to the municipal forest movement by planting the first 5,000 trees for each of several cities without cost to the cities; it conducts an annual program of reforestation in six cities and is creating additional city forests every year by instructing local committees and helping them to obtain their trees from the Conservation Commission; it has established the first Woman's Federation Forest in the country and is leading the Federated Women's Clubs in a movement to create a similar forest in each county of the State; it has carried on a successful campaign in public education, securing the cooperation of more than 1,000 business corporations throughout New York.

The latest achievement of the association is connected with municipal forests in the Capital district of the State, where city forests are being built for Albany, Watervliet, and Castleton. The association has for several years focused attention upon the need for a forest for the city of Albany and has recently been rewarded by the establishment of a tract of 600 acres.

Penn's Tree Factory Increases Output

The Pennsylvania Department of Forests and Waters in 1924 grew 9,100,000 forest trees on the 35 acres which it has available for this purpose - a greater number than was ever before grown in nurseries of equal extent in the United States. This supply goes to meet the needs of a State in which 3,000,000 acres of land good only for timber production await planting. It is believed that by 1928 the annual demand for trees in the State will reach 20,000,000. To produce so many will require 200 acres of nursery land.

The State forests of Pennsylvania cover a total area of 1,131,611 acres, including 23,500 acres on which trees have been planted. The present value of these forests is five times what the State paid for them. The bill to authorize a State loan of \$25,000,000 for further purchases, which has once passed the legislature, will be reintroduced this year and if passed will be voted on by the citizens in November. Its provisions if put into effect would constitute a long step toward the correction of the present situation in which a State capable of producing all the timber

it uses produces only 16 per cent of it, importing the remainder at an expense of \$25,000,000 for freight alone.

In 1924 the State's fire-fighting system succeeded in holding down the total number of acres burned over to less than 75 per cent of the lowest figure previously recorded for the State.--Forest Leaves.

Oregon Studies Relation Between Humidity and Fires

Until the summer of 1924, efforts to obtain information on the relationship of relative humidity and forest fires in Oregon had been confined mainly to the Douglas fir region. During that season the Oregon Department of Forestry made a study of the subject extending over the whole State. A cooperative arrangement was made by the State and the protective organizations for obtaining relative humidity readings from widely scattered sections. Hygro-thermographs were installed in 10 of the patrol districts and sling psychrometers in the remaining 12, either at the warden's headquarters or on lookouts. A representative of the U. S. Weather Bureau visited all the stations having the automatic recording instruments and instructed the men in their use, care, and adjustment. From June 15 on, fairly complete records were secured from 18 of the 22 districts. In addition, complete records for the entire season were available from the U. S. Weather Bureau offices at Portland, Baker, and Roseburg.

A minimum of four readings was required on days of normal humidity and a minimum of eight on days of low humidity.

From the reports received it has been determined that readings taken at high elevations, such as lookouts, are not always dependable. The curves platted from these readings tend to go contrary to a curve platted from similar data obtained at a lower elevation. However, the curve at high elevations is at times an excellent indication of what conditions will be at the lower elevations later. More nearly uniform readings were obtained at stations located at the lower elevations and a study of the curve platted from the data for 5 o'clock p. m. shows that the periods of low relative humidity occurred on practically the same days throughout the State. It was noticeable, however, that the humidity was consistently from 20 to 30 per cent lower in the eastern and southern part of the State than in western Oregon.

Field men were instructed to indicate in reports of all Class C fires the dates and the time during which the fire burned with the greatest degree of intensity. As soon as all the information was available,

the acreage burned over and the date was platted separately for the two regions. On the same sheet was platted relative humidity readings for 5 p. m. at the Portland and Baker offices of the U. S. Weather Bureau, which were taken as being fairly representative of the humidity conditions existing throughout the two sections of the State.

Analysis showed that the fire curve for western Oregon represented 115,000 acres, and that of this total 90,000 acres were burned over on days when the humidity was below 35 per cent. During the period June 27-July 25 the humidity in this section was consistently low, being below 45 per cent on all except 2 days and below 25 per cent on 13 days. During the entire 29-day period more than 40,000 acres were burned over, and on July 23 alone fires covered 13,000 acres. An analysis of the curves for eastern Oregon gave practically the same results as in the case of western Oregon. Previous investigations had placed the hazardous point at 35 per cent or below, but it now appears that 20 per cent can be taken as the danger point for the eastern part of the State. This difference can probably be explained by the fact that in the pine region forest growth and underbrush are not nearly so dense, and hence not nearly so much inflammable debris is present as in the fir region.

A further investigation into fire causes and damage throughout the western part of the State where the major portions of the large operations are located, is not at all a credit to the operators. Thirty-three fires originating in their operations from industrial causes burned over 50,000 acres and resulted in losses placed at \$452,180. In addition, the sum of \$118,582 was spent in suppressing these same fires. All of this damage was done on days of low humidity, and 23 of the fires started during the danger periods from causes directly traceable to the industrial activities. Practically all the operators are so located as to receive reports of approaching hazardous weather conditions from the Weather Bureau, either directly or through the wardens. The experience of the past season proves that these reports were 100 per cent correct. Such needless disasters as these have convinced many operators of the importance of relative humidity and the reports of the Weather Bureau, with the result that they close down during the dangerous periods.

The 1924 study has developed the fact that reasonably accurate predictions of relative humidity conditions can be made from 2 to 12 hours in advance by men who have spent a little time in studying the matter and making observations as to the tendency of the humidity to be above or below normal at certain times of the day. With such training and the daily advice of the U. S. Weather Bureau as to future fire weather, it is very seldom that the field men go wrong in their prediction of weather conditions. Wardens are thus in a position to distribute

their field forces to the points where the fire hazard is greatest, advise operators as to approaching conditions, and take other such necessary precautionary measures against the start and spread of fire.

The investigative work is to be carried on this year under somewhat the same plan but more extensively. The number of hygrothermographs in use by the State and patrol associations will be increased from 10 to 16, and all instruments will be placed in standard shelters which have been approved by the U. S. Weather Bureau. The Weather Bureau will again have a man stationed at Portland to cooperate with the various forest protective organizations, make fire weather predictions, and carry on research work with the aim of securing additional knowledge of fire weather. Duplicates of all hygrothermograph readings and sling psychrometer readings from stations that do not have the self-recording instruments, will be sent to the State Forester. Definite information as to the action of fires on all days throughout the year will also be obtained. Closer study of this information and accurate reports of field conditions will without doubt add considerably to the knowledge already gained.—From Article on "Relative Humidity and Forest Fires," by Lynn F. Cronemiller, Deputy State Forester of Oregon, in the Timberman, and correspondence of F. A. Elliott, State Forester of Oregon.

Farm Woodland Products Bulk Big in New York State

New York State contains an area equal to Massachusetts, Rhode Island, and Vermont, which will grow timber but will not grow farm products, and it contains an area equal in size to Connecticut and Rhode Island, owned in connection with farm properties, which is capable of being managed on a profitable basis of forest production, according to the statement made by Dean Franklin Moon of the New York State College of Forestry, Syracuse University, at the annual Grange Day held under the auspices of the College of Agriculture at Syracuse.

To show the importance of forestry in New York, Dean Moon called attention to the fact that out of 30,000,000 acres in the State 40 per cent, or about 12,000,000 acres, is true forest soil. Four million acres are in farm woodlots, and this area is not being managed on a profitable basis.

"Fifty years ago," said the Dean, "New York State led all the States in timber production; but because of devastating methods of lumbering it is now in twenty-third place producing only 220,000 board feet of

sawed timber annually. This means that there is a tremendous balance of timber trade against us. The people of New York are compelled to pay 53 million dollars annually for freight on imported stock. More than 59 per cent of the spruce pulp wood consumed in New York in 1920 was imported.

"There has been a failure to appreciate the value of forest products on the part of those who own farm woodlots. In 1919 the product of farm woodlots in New York was worth \$19,000,000. Failure to recognize the value of forest management on farm woodlots has brought failure to devote any time or thought to the problem of lumber sales in accordance with the principles applied to the sale of other farm products. The easiest way has been pursued with regard to the management of farm woodlots and for the most part they have become a liability. The sooner forestry is adopted by the owners of farm woodlots the sooner this vast acreage, 4,000,000 acres, will be placed on a paying basis."

Tennessee District Patrolmen Meet

The Tennessee District Patrolmen met at Knoxville on December 11 and 12, 1924, for what State Forester Maddox declared was the best and most successful and enthusiastic conference in the history of the department. On the first day addresses were made by Mr. Maddox, W. A. Mattoon, Supervisor of the Cherokee National Forest, W. H. Stoneburner, Supervisor of the Unaka National Forest, and others. The program included an illustrated lecture by Mr. H. N. Wheeler of the U. S. Forest Service, whose services had been secured by the Tennessee Division of Forestry for a series of such lectures given in different parts of the State and extending over a period of six weeks. On the second day addresses on different points of the work were delivered by fifteen District Patrolmen and were followed by interesting discussions.—The Patrolman's Forest News, Nashville.

The New Jersey Forestry Department had orders for approximately 600,000 seedlings for reforestation work this spring. These trees were shipped early in April. Among the larger orders were those placed by the Newark Water Department and the East Orange Water Department for the reforestation of their watersheds. About 100,000 trees will be planted on the State forest this spring.

EDUCATION AND EXTENSION

Education in Forestry

In the February number of the Journal of Forestry the above title heads a discussion by Dean Henry S. Graves of the development of the profession of forestry in the United States from its beginnings, and of current educational problems. The following is offered as a condensation of Dean Graves' article:

The forestry movement in the United States originated in the seventies and eighties. During that period the difficulties encountered by the settlers of the prairie region in obtaining wood for construction, and the exhaustion of local supplies of softwoods in the Northeastern States, aroused considerable interest. The Federal Government and 16 States enacted laws for the encouragement of tree planting. No steps were taken, however, to protect and conserve the existing forests.

In 1891 Congress granted authority for establishing Federal forest reserves. In 1897 provision was made for the administration of these properties, suddenly creating a demand for men trained in forestry. At that time 22 agricultural colleges in as many States included in their curricula some sort of instruction in forestry, but no institution in this country was offering a course in the subject that approached professional grade. The first to do so was Cornell, which in 1898 established a first-grade school of forestry supported by the State. Two years later a school of forestry offering a two-year graduate course was organized by Yale.

Within the period 1900-1910 the net area of the national forests was increased to 170 million acres and the development of the Forest Service gave rise to a demand for technically trained men far greater than could be met by the existing forest schools. Quite a number of colleges and universities responded to this situation by organizing courses for the training of technical foresters, in most cases four-year undergraduate courses leading to a bachelor's degree. Post-graduate courses were offered by Yale and Harvard and later by several other schools.

From the first the collegiate schools of forestry sought to give a sound scientific foundation rather than training of a vocational character. The early educators looked beyond the immediate problems of pioneer forestry to the inevitable future demand for men equipped to shape our national policies, to reconstruct our public land system, and through research and experiment to develop a system of forestry adapted to our special conditions. The schools were greatly handicapped, however, by lack of facilities, and by the difficulty of obtaining experienced teachers.

Little was known of the life characteristics of American trees and forests, and only European-trained instructors and European text-books were available.

The strongest element in the early schools was perhaps silviculture. Generally speaking, the graduates of the early period were better equipped in dendrology than those of the present time. At first the schools were weak in engineering. They succeeded, however, in attracting to the profession men of exceptional character and attainments, and in setting high professional ideals.

In 1909 a conference was called by Gifford Pinchot, then Chief Forester, for consideration of the aims, scope, grade, and length of course of a technical training in forestry. The report approved at a second conference in 1911 established a general agreement regarding the scope of an undergraduate course and showed the need for one or two years of graduate study for those desiring the best technical training. It was revealed at this time that the schools were endeavoring to turn out foresters of a rather uniform pattern - the natural result of the fact that the graduates looked chiefly to one source of employment.

About the year 1912 there occurred a rather abrupt falling off in the annual demand for technical men by the Forest Service. Many forest schools found their membership seriously diminished and faced the necessity for readjustments both in the objectives and in the plan of instruction. It was popularly supposed that the profession had reached its limit. As a matter of fact, the Forest Service was increasingly requiring men of better equipment, and great enlargement of forestry activities by State governments and by private owners was opening new fields of employment.

A conference of forest schools held in New Haven in 1920 reaffirmed the high educational standards of the profession.

Today the forest schools are no longer feeling their way but are mature and distinctly individualized institutions. About half of them offer graduate work and afford opportunities for research. Each has recognized and developed its best opportunities for specialization. Several of the universities offer a wide range of elective subjects for advanced students. The western schools have adopted the group plan of specialization, offering three or four parallel curricula. While professional and industrial demands for specialization are being met, all the schools continue to give a thoroughgoing course in general forestry and are strengthening this basic curriculum.

Theoretically there are now enough forest schools of collegiate grade, but the schools are not distributed to the best advantage. In the South, a region of vast extent with unusual conditions for forest growth, at least one additional school is needed to bring more southern boys into the profession and thus develop local leadership.

Now that the technical training has been adequately provided for, educators in the schools of forestry are faced with the responsibility of training men not merely to solve problems but to discover what the problems are. They must seek to stimulate the imagination of the student, to prepare him to interpret his environment; they must train men not only for staff positions but for positions of leadership; and they must develop the nonprofessional interests which are necessary for intellectual satisfaction. Two features of the present system that call for correction are a deficiency in courses of a general educational character and a tendency to try to cover too much ground in the technical courses within the time allotted. A possible remedy lies in the simplifying of technical courses so as to permit more attention to cultural subjects, and recognition of the need for a longer period than four years for full training in forestry.

In the scheme of research in forestry the objective of the schools does not lie wholly in the amount of new knowledge placed before the world. A teacher must do scholarly work in order to keep abreast of the times, and independent effort of an original character by the student is essential as a stimulus to good standards of work in any school.

The training of men for secondary positions as rangers, firewardens, etc., has not been worked out so far as that of technical training of collegiate character. This problem and that of the teaching of forestry in the agricultural colleges and schools merit the most serious thought of the profession. It is hoped that they may be made the subject of thorough study by the Society of American Foresters.

Syracuse Gives Kiln Drying Course

The short course in dry kiln engineering at the New York State College of Forestry, Syracuse University, was held during March, 1925, under the direction of Professor H. L. Henderson of the Forest Utilization Department. The class received instruction in piling lumber properly for kiln drying; making all tests on lumber in moisture content, shrinkage, and the presence of case hardening; relieving case hardening,

warping, twisting, checking, and honey-combing; testing the drying condition of kiln air; testing and measuring circulation in kilns; operating kilns by means of automatic regulators, as well as by hand control; locating kiln troubles and means of remedying them; keeping kilns in repair; preparing kiln layouts for the most efficient handling of lumber to and from the kilns; and selecting type and size of kilns for a particular drying problem.

The college has two dry kilns completely equipped with automatic regulators, recording thermometers, and other drying equipment; several small drying ovens, balance scales, a complete sawmill and wood-working shop, and many laboratory specimens of drying equipment such as traps, valves, automatic and self-contained regulators, and recorders.

Schenck Tours Europe with Forestry Students

Twenty American forestry students are making a study tour of the forests of western Europe under the direction and leadership of Dr. Carl A. Schenck. The tour was arranged by Doctor Schenck in cooperation with the Pennsylvania State Forest School. The majority of the students are from that school, and Professor J. V. Hofmann of its faculty is in charge. The party sailed on March 28. They expected to travel through the forests of the Rhine region and Switzerland, the devastated lands of France and Belgium, and the pines of southern France.

Each year Dr. Schenck directs American forestry students and students from the University of Oxford through the forests of continental Europe.

Last year students from the Pennsylvania State Forest School visited 16 organized forests of Germany, France, and Switzerland, and had demonstrated to them the management of forests in which the annual cut equals exactly the timber growth. They were also shown how the logs and wood produced from the forests net the governments, clear of all expense, from \$2 to \$8 annually for each acre of land.

The New York State College of Forestry is planning a similar trip for 1926, with Professor Fenska in charge. Twenty students will leave the United States about June for a tour which as now contemplated will include the forests of Germany, France, Switzerland, and Scandinavia, and if time permits Austria, Sweden, and Finland. It is hoped that this party also will have the services of Dr. Schenck as guide through France and Germany.

New York Senior Camp Opens

The first Senior Camp to be conducted by the New York State College of Forestry, Syracuse University, will open for four weeks beginning May 4. It will be located on the Charles Lathrop Pack Demonstration Tract of 1,000 acres at Barber's Point, Cranberry Lake, in the Adirondacks. The opening of the Sophomore Camp, on the same tract, will follow the closing of the Senior Camp. Professor G. H. Lentz will direct both camps. The purpose of the Senior Camp is to give the students who are about to enter the profession of forestry practical contact with the field in which they will soon be engaged. They will have an opportunity to apply principles learned in the classroom in forest management, forest engineering, and silviculture. Final examinations will precede the opening of the camp, but the awarding of diplomas will be conditioned on a satisfactory showing in this field work.

Oregon Spreads the Gospel

A rather extensive campaign is being carried on in Oregon by the State Forester's office this spring in presenting the activities of the forestry department in the schools and to the Boy Scouts and similar organizations. A member of the department has been appearing with portable pumps, mess kits, fire-fighting tools, and other equipment, describing their operation and use and the methods of locating and fighting fires. A follow-up lecture is later given with slides, depicting various subjects of interest relating to forestry work. The work is becoming quite popular and will be extended as far as the limited personnel of the State Forester's office will permit. Several requests for a third lecture have been received.

Forestry Club Banquets at Syracuse

The annual banquet of the Forestry Club of the New York State College of Forestry, Syracuse University, was held March 24, 1925. The principal speeches were made by J. H. Waterman, Superintendent of Wood Preservation for the Chicago, Burlington, and Quincy Railroad; Arthur Koehler, Chief of the Department of Wood Technology, U. S. Forest Products Laboratory, and Hon. J. S. Whipple, former New York State Forest Fish and Game Commissioner. Mr. Waterman gave a splendid talk on service, Mr. Koehler spoke on the type of mind adaptable to research, and Mr. Whipple urged the students to raise their voice in behalf of reforestation. In addition,

student representatives of the Harvard Forest School, the Forestry Club of Toronto University, and the Forestry School at Cornell University spoke briefly of their college activities; Dr. Forsaith talked on his contemplated trip to England, where he will organize a school of wood technology at Oxford; Professor H. R. Francis gave some of his impressions regarding the recreation forests of Europe; and Paul D. Kelleter discussed the influences that have induced men to enter the field of forestry. The banquet was attended by nearly 300 persons, and was altogether the most successful in the history of the Forestry Club.

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A Live School Plants Trees

Antrim, Pennsylvania, is a small mining village largely surrounded by cut and burned-over areas, located in a township with a total population of about 900. This spring the Antrim School is going to plant 1,800 forest trees. A plot of land has been set aside for this planting by a local coal company, and the trees will be furnished by the Pennsylvania Department of Forests and Waters. The species to be planted are red, Scotch, and white pine, Norway spruce, and European larch, in equal proportion. The school boys and girls will be led by the Boy Scouts and the Camp Fire Girls in this work and in protecting the area after the planting. Last year the children of the Antrim School made a large ornamental planting on their school grounds.

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Yale Forest Alumni Meet

Alumni Day for Yale University was held on Monday, February 23, this year. Dean Graves addressed the Forest School Alumni Association. He stated that it had at present the most effective plan of organization among the Yale alumni associations and that he was interested in trying to secure a similar organization by groups for the larger body. He called attention to the undergraduate courses being given at present by Professors Bryant, Record, and Graves with good attendance and spoke of the plans for tropical forestry and the intention to offer an appointment to Professor George Garratt, '23, in Forest Products.

Professor Record then gave a talk on the prospects ahead in tropical woods, the growth of interest in the subject, the large additions to the collections, and the extension of cooperation with various South American countries. He spoke of the plan to start a serial publication

appearing at irregular intervals on tropical woods. The Council stated that Barrington Moore had been appointed a special committee to cooperate with Dean Graves and Professor Record in working out concrete plans for this publication.

Professor Karl Woodward of the Forestry School of the New Hampshire State College on November 6 and 7 conducted a group of his students over typical timber-sale areas on the White Mountain Forest. Supervisor Yarnall spent one day with the party explaining the marketing of the timber and the administration of sale areas. Tentative plans for the establishment of a summer camp on this forest in the near future were made by Professor Woodward.

Revised Volume Tables for Second-Growth Redwood, prepared by Donald Bruce and Francis X. Schuracher, have been published by the University of California Agricultural Experiment Station. The preliminary volume tables, published in Bulletin 334 of this station, have been found entirely satisfactory in accuracy but inadequate in the range of values included. The new tables have a range approximately twice as great. A new table has been added, giving volumes in cubic feet. The data upon which these revised tables are based are those of the preliminary tables supplemented by 125 trees cut on Big River, Mendocino County, and on Freshwater Creek, Humboldt County.

Copies of the tables may be obtained from the Division of Forestry, University of California.

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Courses in kiln drying have been conducted in Arkansas by three representatives of the Forest Products Laboratory, Madison, Wisconsin. Instruction was given to 12 students at the plant of the Long-Bell Lumber Company, Pine Bluff, and to 16 at the Crossett Lumber Company, Crossett.

Field Trip for Oregon Forest School

For several years it has been the practice at the Oregon Forest School to take the majority of the students into the woods for a period of two weeks as soon as weather conditions in the spring are reasonably settled. This trip is in the nature of intensive laboratory work and consists in the main of surveying, timber estimating, and map making. In 1924, through a cooperative arrangement with Supervisor MacDuff of the Cascade National Forest, the students were given a camp site within the Cascade Forest and a certain amount of technical supervision by officers of the Forest Service in intensive reconnaissance work.

The scheme proved so satisfactory that it is planned to put the project on a permanent basis. This spring Dean Peavy is taking about 80 men into a designated area in the Cascade National Forest for two weeks of intensive reconnaissance work. Before going into the field the men will be assigned to reconnaissance crews and thoroughly drilled in the details of their respective positions. The Forest Service agreed to furnish a number of junior foresters to assist the faculty of the forest school in supervising the work, and to run primary control for the area to be cruised and mapped before the forest school men go in. The results of the work will be accepted by the Forest Service.

Men from the district office of the Forest Service will visit the camp and give lectures on their particular lines of work at the evening bonfire sessions. Thus the Service assists in furthering forestry education and policies and at the same time gets a line on men who may be useful to it in the future. The forest school men derive an insight into the practical field work and develop considerable esprit de corps through working together.

At a recent meeting of dealers in naval stores a committee on permanent organization presented a report urging the creation of the "Pine Institute of America" to provide an instrumentality for research and service in the field of naval stores production.

A 100-acre town forest which will serve as a recreation area and an adjunct to the schools is to be bought by the town of Warwick, Massachusetts. Since the town has only 327 inhabitants this means a per capita tax increase of \$1.83. Advantage will be taken of the offers of the Massachusetts Forestry Association and the New England Box Company to give 5,000 trees each to the community setting aside 100 acres or more.

FOREST SERVICE NOTES

Recent Legislation Affecting the Forest Service

By W. J. Mangan, Washington, D. C.

During the latter part of the recent session of Congress, many measures were enacted which affect the work of the Forest Service. In fact, it was the largest number of statutes of interest to the Service which ever came out of a Congressional grist. With the exception of a few proposed additions to national forests most of the legislative program of the Service received the approval of Congress.

Among the measures which met with approval were acts either making or authorizing additions to 13 national forests and also authorizing land exchanges in territory adjacent to 11 of these forests, which will enable the Government to acquire the adjoining parts forming natural units for forest administration. A forest experiment station in California was authorized to be established. The county officials of Los Angeles are authorized to obtain a permit from the Forest Service to develop a large recreation area. Under an amendment to Section 2 of the Clarke-McNary Act moneys may be expended on the southern California chaparral forests, which are not on navigable streams. A joint resolution directs the Secretary of Agriculture in his discretion to remit grazing fees in certain cases. Section 7 of the Weeks Law was amended to permit exchanges, on the basis of equal value, of lands acquired under the provisions of that law. A resolution was adopted by the Senate to investigate the grazing situation in the national forests and on the public domain. The so-called "Six-Section Act" to simplify the work of the Forest Service authorizes the receipt of contributions in the cooperative handling by the Forest Service of lands within or near the national forests. Another section of the act authorizes the Secretary of Agriculture to expend not more than \$2,500 annually to acquire lands for administrative purposes and to accept donations of land for any national forest purpose.

Reforestation, A National Problem

Excerpts from an address by Associate Forester Sherman before the St. Louis Lumber Convention, St. Louis, Mo.

As a nation we inherited the richest and most easily worked forests on the globe. There would be no such thing as a national problem

of reforestation today had we used our forests with ordinary precautions in the past. Reforestation is today a national necessity because for generations deforestation has been a national custom.

Short and sad is the history of our nation's forests. Our virgin forest area of 822 million acres has been reduced to about 138 million acres. To supplement this we have about 250 million acres of culled and cut-over lands and 81 million acres of lands once forested but now so severely cut and burned as to be an unproductive waste. When you correlate these figures with the fact that each year we consume four and one-third times as much timber as our forests grow, you have established the inevitability of a primary national economic ~~disaster~~ unless we change our ways - the approaching shortage of a raw material more essential to progress than either coal or steel and almost as essential to human life and development as water, light, and air.

"But," you say, "isn't the Government doing something about this forest business? Haven't we Government forests, or wood substitutes, wood preservatives, or something to take care of our future needs?"

Yes, we have Government forests; but they are largely the remnants of our public domain. We have such forests today because Theodore Roosevelt and Gifford Pinchot and a few other enthusiasts got busy about 20 years ago and put them into so-called "forest reserves," now national forests.

In our national forests we have a total area of nearly 158 million acres. Under fire protection the old trees have been preserved from destruction, the young trees are coming on, and the blank spaces are seeding up. Business on our Government forests is developing rapidly. For the year ending June 30, 1906 - the first full year of national forest administration under the Agricultural Department - the receipts for timber actually cut and removed from our Government forests amounted to a total of only \$242,868.23. For the year ending June 30, 1924, the total was \$3,036,395.75, an increase of 1,151 per cent in 18 years. Even at that we cut only slightly over a billion feet, which was only about one-seventh of our annual growth. I am afraid that the next 18-year period may show ^a percentage of increase in the value of timber cut even greater than in the past. I say "afraid" for I am apprehensive of what such conditions may mean in the way of unfavorable reaction upon our national well-being. The Government is in the rather peculiar position of raising for the market a commodity which it hopes will always be cheap and abundant.

The national forests, great and productive as they are, can produce only a small part of the timber required by this country. They are large and will furnish us a permanent annual cutting budget of seven billion feet of timber, which is some lumber pile. On the other hand, we must reckon with the consuming power of 2,000,000 more citizens every year.

It is hard for the human mind ordinarily to realize the magnitude of our problem. About twenty years ago I was talking with a friend on the streets of Missoula, Montana, about this very problem of the inadequacy of our nation's timber supply, when a bystander interrupted me, saying, "Do you mean to tell me that you think this country will ever have a shortage of timber?" My answer was, "I am very much afraid of it, sir." To which he replied, "Huh! That shows how little you know about it; why, there's an inexhaustible supply up the Bitterroot." Now I had been up the said Bitterroot and knew that 1¹ billion feet was a liberal estimate of its timber resources. Inexhaustible? Folly; less than half enough to last Uncle Sam a single month!

The much maligned conservationist has been accused of asking us to save lumber for posterity instead of using it ourselves. The picture is untrue. The conservationist wishes us to cut down the ripened tree and use it; but he asks us not to cut down more trees than we need, and not to leave half the tree in the woods because there are a few knots in the top log. He asks us also not to let fires run unhindered through the forest, for they destroy the young trees which would form forests for the generations of the future. They are the first beginnings of our children's homes. He asks that we who inherited a land filled with giant trees ready for the ax remember that wood will also be needed by our children and their children even unto the end of time; that as we obtain our wood from trees so must they; that unless we wish our race to end like a stream in the sands of the desert we must see to it that those who follow us find also a land wherein trees cast their shade at the feet of man and all things are ordered obedient to his needs. He asks that we in our day and generation observe the Golden Rule and do by those who are to come after us even as we would be done by. To the extent that we, as Americans, in deed and spirit live up to this injunction, we shall prove ourselves worthy of the great sacrifice of our forefathers. We shall also prove ourselves worthy of the love of our descendants.

Military Reservations Made National Forests

Eight new national forests have just been created by executive order of the President. This action has been taken under the provisions of the Clarke-McNary Act for the establishment of national forests on existing military and naval reservations. The new forests are located on

the sites of the following military reservations: Upton, Long Island, New York; Pine Plains, New York; Dix, New Jersey; Meade, Maryland; Tobyhanna, Pennsylvania; and Eustis, Humphreys, and Lee, Virginia. The total area of the eight forests is about 63,725 acres.

In accordance with the provisions of the Clarke-McNary Act, these areas are not withdrawn from military use. At the present time all except the Lee reservation are garrisoned during the summer training season. Lines have been drawn delimiting the national forests so as to exclude those portions of the reservations intensively used for military purposes.

The silvicultural condition of the different areas varies widely. Splendid original stands of white pine on Pine Plains and Upton have disappeared as a result of lumbering and of repeated forest fires; the Tobyhanna reservation contains little merchantable timber but a most excellent stand of young growth 15 to 20 years old; while on the sites of Fort Humphreys and Camp Eustis it will be possible immediately to procure forest products for Federal use and possibly for sale.

Special interest attaches to the establishment of the Upton National Forest on account of its proximity to New York City and the probability that in less than a century the city will have surrounded it. The Humphreys National Forest, three miles from Mount Vernon, has historic interest as comprising Belvoir, in colonial times the estate of William Fairfax, which was frequently visited by George Washington.

New Fire-Preventive Regulation

Secretary of Agriculture W. V. Jardine by virtue of authority vested in him by Congress has issued a new regulation governing the use, protection, and administration of national forests which prohibits "the throwing or placing of a burning cigarette, cigar, match, pipe heel, firecracker, or any ignited substance, or the discharge of any kind of fireworks, in any place where it may start a fire." These acts on a national forest constitute misdemeanors and are punishable under Federal law by a fine of not more than \$500, or 12 months imprisonment, or both.

New Motion Picture Released

Reasons for replanting the devastated forest lands of the Coastal Plains areas of the Southern States and approved methods of planting are shown in the new department educational film release, *Pines for Profit*.

The picture traces the depletion of the forests of the South from the establishment of Jamestown in 1607 to the present day, when more than 30,000,000 acres of cut-over timberlands scar the landscape of the States below the Mason and Dixon line. The practicability of reforesting this area and providing permanent prosperity by means of a constant timber crop are pictured. Details of reforestation, such as nursery practices, broadcasting of pine seed, setting out young trees, and wood-lot management, are included. A warning is sounded against fire, the greatest of all menaces to reforestation.

The picturization of kinds of land that should be devoted to reforestation is another feature of *Pines for Profit*. The film was photographed in the Coastal Plains States from South Carolina to Texas and is a contribution from the Forest Service cooperating with the Georgia Forestry Association, the Florida Forestry Association, and the State Forestry Commission of Alabama.

More Lands for Eastern National Forests

The National Forest Reservation Commission at a recent meeting authorized the purchase at an average price of \$4.77 an acre of 12,817 acres in the Eastern States, including 2,573 acres in Tennessee, 4,253 acres in Pennsylvania, 905 acres in Virginia, 207 acres in North Carolina, 66 acres in Georgia, 300 acres in Alabama, and 428 acres in Arkansas. These purchases bring the total area the purchase of which has been authorized during the current fiscal year up to 247,067 acres, and increase the area acquired in the 14 years during which purchases have been made to 2,593,421 acres. The average price for all purchases has been \$4.96 an acre. Of the area being acquired during the current year more than 30,000 acres are in Pennsylvania, 17,000 in Virginia, 66,000 in Tennessee, 24,400 in North Carolina, 40,000 in Georgia, 5,900 in Alabama, 1,700 in Arkansas, 3,800 in West Virginia, 22,000 in South Carolina, and 21,600 in New Hampshire.

On account of the fact that the National Park Commission, appointed by the Secretary of the Interior, has under consideration the location of a National Park in the Smoky Mountains, the National Forest Reservation

Commission rescinded its action taken in 1911 for the establishment of a Smoky Mountain National Forest. This permits freedom of action by the Park Commission in considering this region for a National Park.

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State Cooperation

The cost of adequate forest fire protection of State and privately-owned lands in the States has for the most part been submitted to the Forest Service. On the basis of these statements it appears that with an appropriation of \$660,000 the Federal Government will be able to allot to the States for the fiscal year 1926 a sum equal approximately to 7.4 per cent of the adequate cost of protection. No arbitrary maximum allotment will be set for any of the States. As in previous cooperation under the Weeks Law, no State will under any condition be allotted a sum greater than it is able to match with State and private funds. The agreement form, budget form, and reimbursement form covering Clarke-McNary activities in forest fire protection and in the distribution of forest planting stock are in the course of preparation, and it is believed will be in final shape before the last of April. The Secretary of Agriculture has not yet rendered an opinion as to whether the provisions of Section 5 of the Clarke-McNary Act, which has to do with cooperation with farmers in the handling of their timber lands, shall be administered by the Forest Service or by the Extension Service of the U. S. Department of Agriculture.

During the closing days of the session Congress passed an amendment to the Clarke-McNary Act which makes the provisions of Section 2 of that Act apply to "watersheds from which water is secured for domestic use or irrigation" in addition to forest-producing lands as provided in the original act. The Secretary of Agriculture, of course, still exercises his discretion as to the extent to which cooperation may be extended under this amendment.

The Mississippi Legislature of 1924 passed a concurrent resolution providing for a commission whose duty it will be to learn from the National Government the terms and conditions under which Mississippi can participate in the Government appropriations and facilities for reforesting the denuded lands of the State. The commission was appointed, and has been active in drawing up a proposed forestry bill for Mississippi which it is understood will be presented at the next session of the Mississippi Legislature. That at least is the intention of the commission. The bill provides for a State forestry board and a State forester and for activities

in fire protection, forestation, technical investigations and studies, cooperation and assistance to timberland owners in the State, education, and publication, and for timber contracts between landowners and the State Board of Forestry whereby the landowner agrees and obligates himself to grow timber on his land in consideration of fixed and reasonable taxation of these lands.

The Bark Beetle Visits Lodgepole

An unusually vivid history of an insect attack upon a flourishing stand of lodgepole pine, and a summary of the disastrous effects of the onslaught, are given out in a recent report by H. R. Flint, District Forest Inspector, of observations made in a lodgepole stand in the Missoula National Forest.

According to Mr. Flint the mountain pine beetles, Dendroctonus monticolae, started work in 1914 in this stand of 72 per cent lodgepole pine, 2 per cent western yellow pine, and 26 per cent Douglas fir, western larch, alpine fir, and Engelmann spruce. They stopped about 1918 - apparently because the supply of lodgepole pine over six inches in diameter was exhausted and they preferred to migrate to new regions rather than to trifle with smaller trees. By 1919 hundreds of dead trees began to fall. By the end of 1923 the majority had fallen, but many of these tall "snags" are still standing and it is estimated that unless fire intervenes some of them will stand until 1935 or 1940. It may well be 140 years before the green forest recaptures this area and regains the fully stocked condition existent prior to 1914.

An interesting fact reported by Mr. Flint is that in the present stand of green timber on this area lodgepole pine has slipped down from 72 per cent to a bare 40 per cent. While it still holds predominating place, Douglas fir has crept up to a close second. In one tract of 200-year-old timber, indeed, lodgepole pine is about to disappear entirely as an important component of the forest cover.

Insect attacks, like fire, in stands of this character present an interesting problem to the forester. According to Mr. Flint, at the present value of this timber operations to control the infestation are not justified. Only if such an attack can be nipped in its incipiency is an effort to suppress it desirable. A devastating insect attack is considered less harmful than fire, however, as it does not injure the soil nor take out the young growth.

National Forest Road Funds

With the passage of the Agricultural Appropriation Bill Congress made \$4,000,000 available for expenditure for the construction of forest roads and trails. This represents the remainder of the amount authorized for appropriation in 1922, practically all of which has been pledged to various road projects. In addition the Second Deficiency Bill passed on March 3 gives the Secretary of Agriculture authority to apportion to the national forest States an additional \$7,500,000. This act, however, does not provide for an appropriation. The apportionment to the various States from these two amounts as approved by the Secretary are as follows:

APPORTIONMENT OF				
	: \$4,000,000 Appropriated	: \$7,500,000 Authorized		
State	Forest	Forest Road	Forest Highway	Forest Road
	Highway	Development		Development
Alabama	1,350	1,811	3,259	6,884
Alaska	231,755	14,948	463,843	15,293
Arizona	139,183	80,702	278,684	129,493
Arkansas	16,425	22,049	33,825	50,958
California	342,544	202,839	683,034	409,132
Colorado	169,192	100,070	336,974	154,674
Florida	4,940	2,619	9,854	18,113
Georgia	3,215	6,170	10,746	16,331
Idaho	256,574	343,813	511,777	620,400
Maine	634	1,415	1,266	466
Michigan	1,177	1,969	2,350	18,599
Minnesota	15,296	12,786	30,523	62,746
Montana	203,137	236,299	405,094	299,459
Nebraska	2,571	3,189	5,128	1,071
Nevada	48,728	7,993	97,249	6,364
New Hampshire	8,032	7,450	16,047	15,481
New Mexico	106,639	55,309	212,453	73,062
North Carolina	6,729	14,465	13,455	29,373
Oklahoma	1,300	2,762	2,381	3,018
Oregon	291,274	257,205	581,745	457,729
Pennsylvania	1,184	5,371	3,801	10,069
Porto Rico	334	1,595	666	153
South Carolina	377	2,749	1,616	5,622
South Dakota	17,683	6,533	35,280	26,368
Tennessee	4,817	7,258	9,528	19,454
Utah	86,721	36,675	173,243	54,984
Virginia	6,939	14,385	15,371	29,481
Washington	166,164	222,537	330,675	357,122
West Virginia	2,344	4,539	5,033	13,466
Wyoming	112,737	72,490	225,100	94,635
Total	2,250,000	1,750,000	4,500,000	3,000,000

GENERAL FOREST NEWS

50,000 Firebrands

By E. T. Allen

(Excerpts from address before the fiftieth anniversary meeting of the American Forestry Association, in Chicago, January 22, 1925.)

When human distress comes to our eyes or ears, we act first and argue afterwards. I wish there were some way to get good, warm human emotion aroused to its proper place in viewing the forest fire picture.

To all too many in this land, and all too often, the picture is a vivid one, and human above all else. There is no more pitiful thing, I think, than the settler's family, after years of privation and incredible labor, surveying, without food or shelter, the blackened ruin of all their hopes, or fleeing in refugee trains they know not whither. I wish this association and our lawmakers might see this once.

There is no more discouraging thing to little pioneer communities than to face the winter with crops, schoolhouses, and bridges gone, even though they may have saved their homes.

There is no greater hardship and exhaustion, unless in war, or sometimes at sea, than that of thousands of sleepless and smoke-blind fire fighters, every year, while the rest of us are seeking summer pleasures.

We think too much of fire as an abstract force of nature and of its results in terms of economic loss; for, although human nature is mercenary enough, it does not arouse to deal with such abstractions as it will when it realizes that the cause of fire is human dereliction, and that its consequence is human suffering.

Suppose that by their own reasoning, or by our missionary work, or by the mandatory laws that some people propose, there should be created tomorrow a body of 50,000 forest landowners, well distributed throughout the country for the sake of their example, and pledged to do all that anyone could ask them to do to perpetuate the forests under their control. Suppose, further, that every State legislature has removed the obstacle of discouraging taxation. Do you realize that as long

as we have 50,000 forest fires a year, there is, for every one of these owners to engage in forestry, another man with a torch waiting every year to destroy his enterprise?

Our present achievement in the forest fire line being 50,000 fires and 10,000,000 acres burned over, we are averaging 200 acres to the fire. Each, then, averages two-thirds of a mile in diameter. Lining up the 50,000 so they touch, they extend 32,784 miles; so each year we run ten lines of fire, each two-thirds of a mile wide, across this country from coast to coast; and if we cut out the prairie and farm country, keeping these lines in the woods, it will not take very strong winds to drop sparks anywhere between them.

This is the handicap we place on every public and private agency we have the effrontery to hold responsible for the perpetuation of American forests, and to criticize for their negligence.

My proposal... is a centering of much nearer nine-tenths of our effort, if fire prevention is nine-tenths of forest perpetuation, upon the definite task of arousing the American people to fire consciousness...

We continually overlook what is still more urgent and much harder to accomplish - the eradication of a national propensity to set the woods on fire. We divert our own and the public's minds from this by a scattering campaign for everything else, which is all right in detail, but all-wrong in proportion.

Even in our campaign against fire we do this by making people visualize fire itself as their enemy. This is an ineffectual conception. It probably leads to support of others' activities; also reduces the sum of carelessness; but, after all, it only sprays and quarantines, as it were, indirectly and aimlessly against the fostering of a blight. It does not operate in time and place to arrest anywhere near enough of the 50,000 hands that fire the forest every year.

All that will do this is a consciousness that says to the offender, "Thou art the man!" Our problem is not a fire hunt but a man hunt; before the fire if possible, but in no case abandoned until he is eliminated. Not fire, but the owner of the hand that lights it, is the public's enemy.

I would, in every budget in this land for forest protection, devote not less than 5 per cent .. sometimes more - to education against the starting of fire. You need not tell me that \$325,000, or this proportion of our average six and a half million expenditure, would not, if

skillfully used, cut down the cost by a far greater amount and save tremendous loss besides. It is an indefensible system that leaves preventive education, in a situation such as I have described, to a haphazard experiment now and then with what funds it is felt can be spared from fire fighting.

Has it ever occurred to you that we are the best fire fighters in the world, of which we are inclined to boast, just because we lead the world in permitting fires on which to practice?

In this "educational" effort I would not abandon other arguments, but would for a time, until none has any possible excuse that he never realized it, make the campaign center on personal responsibility and the crime of fire setting and fire toleration, whether the form involved be willful incendiaryism or the carelessness with match, cigarette, camp fire, locomotive, land clearing or logging fire, or maintenance of fire traps, that has precisely identical results.

Secondly,.... I would police the woods in a way they have never been policed, not leaving the law to be taught and enforced by forest firemen, however splendidly chosen and trained for the technique of their own profession, but providing as many as need be of men equally chosen and trained for the different and equally needed profession of law enforcement.... If their presence and efforts do not forestall the crime, they must bring in their man and achieve such an understanding in community and court that punishment is a lesson, not a farce.

It is an indefensible system that trains thousands of men to chase and fight fires, but virtually no men to chase and fight those who build the fires.

Spruce Imports Increase

Baltic spruce is coming into the American market in increasing amounts. A single New York order for 2,000,000 feet is recorded. This movement seems to foreshadow a situation in which trees grown as a crop could compete with virgin forests in the international market. Probably in lumber production at the present time the difference in cost between American and European labor tips the balance in favor of Europe, in spite of the fact that in the United States the labor item does not include the growing of the trees. It is hardly likely that European competition will

supplant any wood in any American market, though it may exert an unfavorable effect upon values. In the long run it should, however, have a salutary effect upon the attitude of the American public toward forestry and reforestation.--American Lumberman, Jan. 24, 1925.

Progress of the American Forestry Association

The appointment of Mr. Shirley W. Allen as forester was the most notable step in the broadening of the American Forestry Association's educational and legislative activities during the past year, according to the annual report of the secretary.

The necessity for increased expenditures by the Federal Government for forest fire protection will be the subject of one of the association's major activities in 1925, as during the past year.

Important measures and projects actively supported by the association during the past year include the following:

The Clarke-McNary Act, passed by Congress on June 7, 1924, which constitutes the most important forestry legislation in recent years.

Initiation of a 10-year program for the establishment of national forests in the eastern half of the United States and the drafting of a bill, introduced in Congress on December 20 (the McNary-Woodruff Bill), to authorize expenditures with which to carry out this program.

Better game protection in Alaska and the bill providing for an Alaskan game commission, which was recently passed by Congress.

The movement to coordinate industry and the public in a definite program to eliminate waste in the use of our forests and to expand research in forest utilization.

Stimulating public interest in the practice of forestry by giving publicity to outstanding demonstrations of the feasibility of conservative forest management.

Editorial promotion of forest legislation in different States and direct assistance whenever facilities permitted; advocacy of more town and State forests.

The printing and distribution, practically at cost, of a set of forest fire posters and stuffers - a total of 34,300 posters and 256,000 stuffers.

The Highest Logging Operation.
By John F. Preston, in the Four L. Bulletin

Logging at an elevation of 11,000 feet is getting pretty well up in the air, and if it isn't the highest logging job in the country it is time for those who have seen higher ones to come forth and tell about them.

In northern New Mexico, up near Jicarilla Peak, which rises to an elevation of 13,500 feet and sticks up high above timber line, is the operation of the Santa Barbara Tie and Pole Company, furnishing 300,000 to 400,000 ties annually to the Santa Fe Railroad.

The logging headquarters are located at Tres Ritos on the Rio Pueblo in the center of an operation which has continued for 10 years or more. In that time the logging operation has moved up stream, cutting in yellow pine at the lowest elevation, in Douglas fir at intermediate altitudes, until now nothing but high altitude Engelmann spruce and cork-bark (balsam) fir is left. The fact that logging does not stop because the slopes are steep, the altitude high, or the species less valuable than formerly, testifies in no uncertain tones to the growing scarcity of timber.

The present operations are on the Carson National Forest, and all timber is marked for cutting by forest officers. Everything is cut, including a high altitude foxtail pine known locally as bristle cone pine. Trees and logs of the right size are made into hewn ties and those too large are pulled on burners by horses to circular sawmills where sawed ties are made. Four such mills are in use, cutting as many as 600 ties per day per mill. The slab piles would make some lumbermen in more favorable localities weep. There is practically no market for side lumber, so anything which isn't capable of making at least a 6x8 tie is thrown on the fire.

Transportation from the mills to the main Rio Pueblo is by flume, where ties are barked until the spring floods. As soon as the snow begins to melt in the spring, the drive begins, carrying the ties to the mouth of the Rio Pueblo. Here they are held until the Rio Grande is at just the right stage of water, when on they go to Domingo, the loading point on the railroad. The total length of the drive is about 95 or 100 miles.

Last year the local foresters systematically set about the job of finding how fast the trees were growing on the Rio Pueblo working circle in virgin and cut-over stands. It takes a tree at least 12 inches

in diameter, breast high, to make a tie, and the average tree cut on the national forest is $13\frac{1}{2}$ inches at breast height. This leaves a large number of trees standing, from seedlings up to 10, 12, and 13 inches, ready to grow bigger and faster as the result of the removal of the larger trees. The question the foresters had to determine was the length of time required for these trees to grow big enough again to justify cutting for ties.

Cuttings 10 years old were available, and increment borings were taken of a large number of trees of various diameters. From these borings counts were made of the rings per inch, or rate of growth, before and after thinning. It was found that yellow pine trees released by cutting grew 62 per cent faster than before cutting, Douglas fir 50 per cent, and spruce 77 per cent. The upshot of it all was the determination that the trees were growing fast enough so that a second cut equal to the first could be obtained in 30 years.

Then as a result of some more figures and tables and type maps they found out that at the rate ties have been going out of the Rio Pueblo working circle and with the available virgin stands there would be no end to this operation as long as the tie market held out. Fortunately, the fire danger here is very light, and quick returns of the ax should prevent any big loss from bugs or disease.

The foresters guess from studying the rate of growth in virgin stands that it will take from 120 to 150 years to grow a tree from seed to tie size, but they may beat that. In about 75 or 100 years it will be known, but meanwhile it is good to know definitely that every 30 years we can cut 80 to 100 railroad ties from the average acre of timberland in the Rio Pueblo working circle.

Southern R. R. Puts Land Under Management

To demonstrate the results that can be obtained by applying forestry to timberlands in the South, the Southern Railway System has put an expert forester and three assistants in charge of approximately 12,000 acres of standing pine in Dorchester County, South Carolina, and will market the full-grown timber while preserving the young trees for future growth. As the present loblolly stand is cut, slash pines will be planted so as to produce turpentine as well as timber in the future. In explaining the purpose of the project Lincoln Green, assistant to the president of the Southern, said: "The rapid depletion of our forests

makes reforestation imperative. Timber can be produced in the South in half the time required in more northern latitudes and by introducing slash pine we can extend the naval stores industry into territory where it is now unknown. The Southern is undertaking a demonstration of what can be done in the South, operating on lands which were originally purchased as a source of fuel supply for the old South Carolina railroad, now our Charleston division. We shall conduct our operations strictly as a business enterprise."

Forest Reproduction on the Pacific Coast

John Rosegard, Forest Engineer, in an article appearing in the February number of The Timberman presents some personal observations in regard to reproduction in the forests of the West Coast. He states that there is hardly a place on the Coast where indications of fire are wanting. In some districts these indications are of great age, such as charred cedar snags standing among large trees 400 years old or older which have no sign whatever of burns, or grand old firs showing charred bark standing thinly scattered among a new generation of hemlock and cedar possibly 200 years of age, none of which show the scars of a fire. Still older signs are pieces of charcoal found under the soil in certain vicinities.

Whether there has been a vast fire that swept the West Coast, no one can say. It is more probable that there have been many smaller fires at various times. The wettest place on the Coast shows the scars of forest fires, however, and in a season dry enough to burn this district the balance of the Coast timber must have been in great danger.

Fir seed cannot germinate in the damp mantle of mould and moss which is always to be found under a heavy stand of any species of timber. In a heavy stand of either fir or mixed species, reproduction is consistently hemlock.

A burn will invariably grow a thick stand of young fir - mixed with alder if the soil is good. Among alder, young firs grow tall and clean trying to gain the sunlight above the tops of the alder, which grows faster. Eventually the alder is smothered out, leaving a thick stand of fir of medium size and grade. If there is no alder the fir grows limbs from the ground up, and as the trees become large the bottom limbs die and drop off, leaving knotty trunks. This results usually in a stand of small,

knotty timber with much rot. But the new generation grows tall and clean of trunk, seeking sunlight through the tops of the older growth.

As the mould and moss accumulated under the fir in the Coast forests hemlock encroached and gradually took full sway, with a scattering of fir and an occasional cedar. A few exceptions to this rule include gravelly hillsides with south slopes where hemlock, having only surface roots, cannot gain a footing.

Certain burns that never reproduced timber were called natural prairies by the settlers, but are really areas which the Indians made their homes and over which they ran fires time and again. On some large areas of logged-off land no reproduction of conifers occurred, obviously because small tracts were burned over as they were logged, each new fire sweeping over the old burn and killing all the seed that had germinated.

White pine is found quite commonly at an elevation of 3,000 to 4,000 feet on the Coast, usually in a dwarf stand of other species but sometimes finely developed among large firs and hemlocks.

Red cedar grows everywhere from sea level to 4,000 feet up. Yellow cedar never comes below an elevation of 3,000 feet in Washington.

Spruce propagates only in heavy, rich soil. On open land it grows at a surprising rate but has limbs from the ground up. Among other timber it grows but little faster than other species.

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Tree Census Completed in Southern Pine

A detailed survey of the remaining timber stands in the Southern Pine producing territory, from North Carolina to Texas, has been completed by the Southern Pine Association for the second time in five years. The results of this "census of the trees" have now been tabulated with sufficient completeness to indicate general conclusions in regard not only to the present forest area but also to the volume of lumber production that may be expected from this territory in future years.

The survey has shown that since 1919 the available stands of merchantable southern pine timber have decreased from about 260 billion board feet to 220 billion feet; and that production has increased to such an extent that the 1934 cut was approximately 16 billion feet, which is close to the maximum production for any year.

New tree growth is estimated at about 7 billion feet a year. Since the average annual cut during the period 1919-1924 was 15 billion feet, this means a yearly reduction in the timber stands during that period of 8 billion feet.

The extent of new growth, the survey indicates, is such that the annual production of southern pine will never fall below 6 or 7 billion feet a year; there is thus assured a perpetual supply of southern pine, in volume at least equal to one-half the present production, and much more than that when State and national reforestation programs now under way are made fully effective.---Folder of Southern Pine Association.

Control of Western Pine Beetle

An experiment was started in the ~~Sierra~~ National Forest in 1920 to determine whether direct control measures against an endemic infestation of western pine beetles would result in saving enough timber to pay currently for the work. (Endemic infestations are now considered to be those in which the insects are killing annually less than one-half of 1 per cent of the stand or on the average less than 100 board feet per acre.) The objectives of this project were to reduce endemic loss of this nature by direct control measures, consisting of cutting the infested trees and destroying the insect broods in the bark; also, by the same methods to prevent or forestall epidemics arising from endemic conditions. Aside from carrying on this work with varying intensity on a series of units, an analysis was made of the infestation developing on check areas where no control work was done.

The final results of this experiment will be available sometime in the year 1925. Data now on hand indicate that only intensive work, that is the treating of all infested trees that can be located, can appreciably reduce endemic losses and eliminate about 90 per cent of the seasonal infestation. Such work costs 32 to 45 cents per acre. From the cost figures obtained from this experiment, stumpage values must range from \$7 to \$12 per M.B.M. in order to put the cost of the work on the right side of the ledger.

These results, if proven conclusively, will modify the policy that has heretofore been followed in the control of this beetle. Until the present time control work has been considered warranted if directed against

an infestation in accessible timber where any aggressive tendencies were noticeable, even though losses were low. It now appears that unless less expensive methods can be evolved, control work under present stumpage values of yellow pine in this district cannot be applied to advantage except where relatively high epidemic losses prevail. Where annual losses are as high as 1 per cent of the stand a saving can be effected by direct control methods if stumpage values exceed \$4.50 per M.

Erie County Keeps Elbert Hubbard's Memory Green with Trees

The East Aurora Fish and Game Club of Erie County, New York, annually celebrates May 7 as "Hubbard Memorial and Reforestation Day" by planting forest trees upon idle farm land. It planted 25,000 trees in 1923 and 52,500 in 1924, and several months ago its plans for 1925 called for the planting of 179,000. This number will be much increased by the time of planting, for the club committee has been actively signing up applications with owners of idle land.

In order to establish cordial relations with the neighboring farmers and to convince them that the reforestation of idle lands will benefit the entire community, the club has been presenting illustrated talks on forestry at meetings of granges and other farmer organizations. Announcement is made at these meetings of the club's offer to furnish 500 trees and plant them on land belonging to any of its members. Membership costs \$1.50. The club also agrees to provide additional trees at cost, plus transportation from the nursery to the farm, and to plant them without charge.

The trees are obtained from the nursery of the New York State Conservation Commission, and are planted through the assistance and cooperation of the Boy Scouts.

The program for 1925 was started last fall when the club had an exhibit featuring reforestation at the county fair in Hamburg, New York. The plan was then introduced to farmers and landowners, and initial arrangements were made for the lecture program which has continued through the winter.

The club has set as its goal the reforestation of every foot of waste or nonproductive land in Erie County.

Redwood Grove Named for Dean Graves

The Henry S. Graves Redwood Grove is to be established 10 miles south of Crescent City, California, in honor of the provost of Yale University and dean of the Yale Forestry School. The tract of timber-land acquired for the purpose consists of 157 acres and has a stand of about 12,000,000 feet of giant redwoods, besides other valuable forest growth. The purchase of the tract was made possible through the activities of George Frederick Schwartz, member of a well-known family of lumbermen, and it is by his wish that the grove will be dedicated to Dean Graves. It is intended to complete the purchase of the tract in the near future and to make it a public park.—Yale Alumni Weekly.

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Tut, Tut!

"There is no need to state that timber, more than any other raw material, supplies man with the means of satisfying a great many of his essential requirements. But certain trees on the other hand are positively harmful. There are some which, if approached too near, may end one's existence. A vegetable octopus in South America once nearly killed a naturalist and his dog, while there is a 'cannibal' tree in Australia capable of trapping a man with its leaves and mangling the life out of him. The 'telegraph tree' of India also has electrical qualities which can kill a too-curious person with a weak heart."—Timber Trades Journal, London, No. 40.

We are pained to see our esteemed contemporary neglect the North American continent in the above observations. Surely it has heard of our "sandbagger" tree which carefully hoards its dead lower limbs in order to drop a devastating cudgel upon an innocent passerby. Then there is our "kangaroo" tree which is chiefly peevish during cold, frosty weather. If the woodsmen attempts to fell one in such a season and gets back of the tree as it starts to fall, it is likely to kick back several feet and land him in the nearest hospital — or beyond. Fortunately a V-notch method of hobbling the kangaroo tree so it cannot kick back has been devised; against the sandbagger tree no adequate protection except vigilance and caution has yet been developed.—Lumber World Review.

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A forest product of the utmost importance to humanity is paper, and the largest user, importer, and manufacturer of this product is the United States. Uncle Sam already uses 31 per cent of Canada's pulpwood

cut, 32 per cent of her pulp, and 78 per cent of her newsprint production, also 10 per cent of Sweden's pulp and smaller amounts from other countries. We depend upon other nations for more than half of the wood represented in the paper we consume notwithstanding the fact that our original forests, the finest in the world, contained more than enough for all conceivable needs of the country if only a portion of them had been properly managed. Canada, our chief reliance for paper and paper materials, may soon have use for all her pulpwood forests.

In Canada 90 per cent of the forests are publicly owned. In contrast with this 53 per cent of the forest resources are publicly owned in Germany, 35 per cent in France, 24 per cent in Sweden, and only 20 per cent in the United States. It may be questioned if Canada's percentage is unnecessarily high, but the United States needs a greater proportion of public forests. In Canada, so far, exploitation exceeds the amount expended upon the public forests; in the United States the expense to date exceeds the income.

A significant "sign of the times" is reported from Bogalusa, La., where the Great Southern Lumber Company has abandoned for all time the use of its huge refuse burner, ~~said~~ to be the largest in the world. The company states that all its waste materials are now needed for the paper and pulp mills and other by-products industries centered at Bogalusa. The waste burner will be allowed to stand, however, as "a monument and memorial to waste."

The R. J. Reynolds Tobacco Company, Winston-Salem, N. C., has notified the chief firewarden of Washington that packages of cigarettes and smoking tobacco prepared by it for shipment to that State hereafter will contain the following printed notice: "Help prevent forest fires. Be careful to avoid dropping burning matches, lighted cigars or cigarettes, and ashes from pipes where they might start a fire."—American Lumberman.

FOREIGN NOTES

"Save the Forest Week" Proclaimed for Canada

By Royal Proclamation the week of April 19 to 25 inclusive was appointed to be observed in Canada as "Save the Forest Week." Such an annual observance is regarded as one of the principal developments of the movement which originated in Canada only last year.

The statistics of the several forest authorities of the Dominion show that through the occurrence of forest fires the forest resources have suffered enormous losses far exceeding the depletion in timber wealth through legitimate cutting operations.

The proclamation emphasized that next to agriculture the forest industries constitute the most important source of Canada's national income; and that according to the experience of all forest authorities in the Dominion the forest fire problem can be solved only with the full sympathy, assistance, and active support of all the people. Suggestions were included as to the precautions which should be observed by settlers and others engaged in the clearing of the land, by campers, and by timber operators.—Natural Resources, Canada.

Australia Plants Large Acreage

It is slowly coming to be recognized in Australia that there is very great necessity for the establishment of softwood reserves. The matter has for years received much verbal attention, but so far very little has been done in a practical way. The establishment of 40,000 acres of pine reserves around Anglesea, Victoria, which has now been undertaken, is the largest softwood planting yet planned in Victoria if not in Australia. Parts not suitable for pines are to be planted in wattle, and in some areas natural growths will not be disturbed. The land to be planted, which is now practically a wilderness, will in about 30 years time be a very valuable forest area. The Victorian Forestry Department holds about 6,000 acres, the rest being held by the Lands Department. The director of the Victorian State Forest School, Mr. C. E. Carter, received his training in Forestry in America.

Robin Hood Oaks Still Grow in Sherwood Forest

By Nelson Courtlandt Brown

A recent visit to Nottingham and Mansfield disclosed the fact that many of the famous old trees which formed a part of the great Sherwood Forest in the days of Robin Hood and his "merrie foresters" clad in Lincoln green are still standing. They are pointed out with a great deal of interest to all of the many tourists visiting this beautiful region which contains some of the best examples of old castles, deer parks, and estates of the English nobility.

Originally Sherwood Forest stretched from Lincoln on the east to Bakewell and Chatsworth in Derbyshire on the west. Many of the original trees are still standing in Chatsworth Park and these are said to be some of the finest examples of remnants of the old original Sherwood oaks. The forest also stretches from Nottingham on the south to Sheffield on the north.

Since the days of the famous exploits of Richard the Lion-hearted and his faithless brother King John this region has given way to great industrial and agricultural development, and much of the original forest has been sacrificed to provide agricultural areas for the rapidly increasing population.

Robin Hood and his merry band flourished in the years 1170-1200. Many old historic names associated with their romantic feats and exploits are still in use. Most of the oaks which composed the original forest are great gnarled specimens of the English white oak sometimes called the Pedunculate oak. Many of these old trees are named and bear little markers placed to express their significance in connection with the life of Robin Hood. For example, one is known as Robin Hood's Larder, another is known as the Queen's Oak, and still another, in Thoresby Park, as the Major Oak. The Major Oak is believed to be over 1,000 years of age. It is hollow, and it is said that 23 men have been able to get into it at one time. Thousands of dollars' worth of steel rods and chains support the widely branching limbs. The Queen Oak is one of the few trees still standing in England that were described in the famous ~~Domesday~~ Book.

The forest is a region of charming valleys, lovely rolling hill-sides, and prosperous villages.

On the Duke of Portland's game preserve there is a large hollow oak where Robin Hood is said to have hung deer and other game which he poached from the king's domain. Unfortunately this fine old oak, although

protected and cared for at great expense, is in the last stages of deterioration and will not long be available for the pleasure and delight of the many visitors.

Near Edwinstowe is another interesting grove of old oaks some of which are said to be 1,700 or more years of age.

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Norway's Mutual Forest Fire Insurance Prospers

The Norwegian Forest Fire Insurance Company has made the following report for the year ending October 31, 1924:

After the necessary provisions had been made for special funds satisfactory profits resulted, all of which were transferred to the reserves of the company. The reserves have now been increased to 1,723,000 crowns. (At the present rate of exchange the Norwegian crown is worth about 16 cents.) The insurance for 1924 amounted to 348,000,000 crowns, compared with 330,000,000 crowns in 1923. The company has extended its activities to every province in the country, and more than 70 per cent of all private forests in the southern section of Norway have been covered by this insurance. (Forests in the northern part of Norway are unimportant.) In addition to private forests the majority of the municipal forests and 12 county forests have applied for insurance.

Norway is no doubt the pioneer country in forest fire insurance. From its very start in that country forest fire insurance has been profitable to the stockholders. It should be emphasized that this is a mutual undertaking.

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Canadian Air Service Protecting Forests

The services of the Royal Canadian Air Force are being used by the Forestry Branch of the Dominion's Department of the Interior to a large and ever-increasing extent. During the year 1924 the Air Force devoted practically as many hours of flying to forest protection as to distinctly military work. Forest reserves including over 3,000,000 acres of forest land were covered twice daily by air patrols during the season of fire hazard. The success of these operations is proved by the fact that during the past four seasons no fires originating in the reserves have got beyond control of the nearest district ranger. This work called for 345 hours flying during the season.

In Manitoba an area of 40,000,000 acres was under observation from the two Air Force Stations at Victoria Beach and Norway House, requiring 1,010 hours flying. Here fire suppression was undertaken by air as well as fire-detection work, the fire-fighting forces with their pumps and gear being transported to the scene of the fire by air. The season's work has conclusively proved that in a remote and uninhabited area such as this both detection and suppression can be undertaken to the best advantage from the air.

It is expected that a smaller machine of lower horse-power than those now in use or included in present construction plans, which would be cheaper to construct and cheaper to maintain, will be developed to perform fire-detection duties. Probably when wireless intercommunication is perfected and efficient patrol systems are available in the country a light single seater machine can carry out these duties at very greatly reduced costs.--Illustrated Canadian Forest and Outdoors.

Old Sol Fails to Cooperate

The British Meteorological Department has issued a warning that the year 1925 will be the driest of the century. This prediction is based upon a new discovery in regard to the close connection existing between rainfall and the frequency of solar prominences. The latter are explained to be tongues of flaming gas that dart out from the sun's surface, sometimes to a height of 250,000 miles and at a speed of more than 150 miles an hour. By three years' study experts have learned that the interval between the dates when these giant fireworks are most active has grown progressively shorter during the last half century, while the periodicity of wet years in England has shown a corresponding change. The mathematical curves indicate a relationship that is too definite to be overlooked; and the experts assert that if any faith can be placed in the constancy of the solar prominences the year 1925 should be a dry one for England and a drouthy one for the rest of the world.

New Uses Found for Scotch Pine

German scientists are reported to have found a way to manufacture material closely resembling wool by chemically treating the leaves of the Scotch pine. It is said that this new substance can be spun, curled, and woven. One of the uses to which it is being put is a stuffing for mattresses. The aromatic odor makes the mattresses insect-proof and also agreeable and beneficial to sleepers, especially patients in hospitals.--Forest Leaves.

PERSONALS

Paul D. Kelleter, formerly Director of Purchases and Sales for the Department of Agriculture, has just been appointed head of the Extension Department of the New York State College of Forestry. Mr. Kelleter succeeds Mr. Earl S. Peirce, resigned.

Mr. Kelleter was graduated from Washington University at St. Louis in 1902 with the degree of B. A., and received the degree of Master of Forestry at Yale in 1904. He entered the Forest Service on July 1, 1904, as forest assistant and was for several years in California engaged in special forest and market studies. In 1906 he was sent to the Black Hills in South Dakota and Wyoming and directed the classification of timber and agricultural lands. In 1909 Mr. Kelleter was promoted to Forest Supervisor of the Black Hills National Forest, which comprises 1,250,000 acres. In this position he was responsible for extensive re-forestation and timber utilization projects and fire protection plans. From 1910 to 1912 Mr. Kelleter served as representative of the Federal Government and chairman of the board to effect the exchange of scattered school sections belonging to South Dakota for a compact tract of land - now the South Dakota State Park.

Mr. Kelleter was transferred to Washington in 1918 to take charge of the information work of the Service, and in 1920 became Assistant Chief of the Branch of Operation. In 1923 the Secretary of Agriculture appointed him Director of Purchases and Sales to organize and coordinate the purchase activities of the entire department to conform to the requirements of the budgetary legislation of the Federal Government.

Dr. Perley Spaulding has been appointed forest pathologist for the Northeastern Forest Experiment Station. His appointment is one of the two made possible this year through an increase in one of the appropriations for pathological work by the Bureau of Plant Industry. Dr. Spaulding has long been familiar with conditions in the region of the Northeastern Station and is the world's foremost authority on the white pine blister rust, which will for many years to come be one of the vital problems of New England forestry.

At the thirteenth annual meeting of the New York State Forestry Association, held in Albany, Representative John D. Clarke, well known for his work in connection with the Clarke-McNary Forestry Law, was elected to the executive committee. J. R. Simmons, who had served the association as secretary and forester since 1919, was reelected for the year 1925.

W. R. Barbour has accepted the position of forester for Haiti under the American Occupation.

Thorvald S. Hansen is now an assistant professor in the University of Minnesota and is in charge of the Cloquet Experiment Station in Minnesota.

Professor R. C. Hawley, Yale School of Forestry, was elected chairman of the New England Section of the Society of American Foresters at its recent annual meeting. The newly elected chairman of the Central Rocky Mountain Section is Professor Gordon Parker of Colorado Springs.

Aldo Leopold was made vice president of the National Game Conference, and attended this conference in New York.

Dean Hugo Winkenwerder of the Department of Forestry, University of Washington, recently made a visit to the Yale Forest School.

Theodore C. Zschokke, Superintendent of Forests for Hawaii, finds his work interesting, worth while, and full of variety. He writes of inspecting a large tract now covered with thorny scrub which the owner wants to reforest. Since the place is swept by a strong trade wind, the owner is eager to plant trees having wind-borne seeds.

Fred A. Besley, State Forester of Maryland, has moved his office from the Calvert Building to the Fidelity Building in Baltimore. Besley is the oldest State forester in the United States in point of continuous service in one State, and it is claimed that he is the only State forester able to deliver a 30-minute speech in 28 minutes.

C. C. Robertson writes of a most interesting tour in India and Australia. In Australia he was impressed with the need for a really good forest school.

Mr. L. C. Everard, formerly Chief of Publications of the Forest Service, has returned to the Service as Editor. Mr. Everard resigned in 1919 to accept the position of Chief Editor of the Department of Agriculture, and later engaged in publicity work for the War Finance Corporation. He has for some years been associated with Findley Burns in the printing and book-selling business in Baltimore as Vice President of the Medical Standard Book Company.

Mr. H. N. Wheeler of the Forest Service has gone on a lecture tour through Connecticut and Vermont in which the State Foresters of these States are cooperating. He will return to Washington about May 5.

At the "family meeting" of the Forest Service on April 8 Theodore W. Norcross gave a talk on national forest highways. His remarks were supplemented by a number of pictures and graphs illustrating the character and extent of the various types of roads in use and projected.

Mr. W. R. Mattoon of the Washington office of the Forest Service recently made an extended trip through South Carolina, Georgia, and Mississippi. An interesting feature of his trip was the field demonstration meeting on the forestry tract of the Agricultural Experiment Station at Summerville, South Carolina, where for 12 years the Forest Service and the State together have been experimenting in natural and artificial re-forestation.

Mr. Ellwood Wilson, Manager of woodlands for the Laurcntide Paper Company of Quebec, visited Cornell University in March. He gave four illustrated lectures on aerial photography and mapping of forest lands, and also discussed the use of the airplane in forest fire prevention and control and in other lines of forest management and administration.

Dr. Arthur Kochler, in charge of the Division of Wood Technology of the U. S. Forest Products Laboratory, in March and April visited a number of the eastern forest schools to lecture on the work of the laboratory and the opportunities for research in forest products. Arrangements were made for him to spend three days at each of the following schools: Michigan Agricultural College, University of Michigan, New York State College of Forestry, Cornell University, Northeastern Forest Experiment Station, Yale University, and Pennsylvania State College.

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